

ABSTRACT

The increased use of data communications and improved infrastructure in the area of urban / metropolitan and the high user mobility are some factors that produce signal propagation problems. These problems affect the quality of communication services.

The application of coherent channel communication system , on the transmitting and receiving devices, is able to maintain the service quality by means of channel estimation . The application of the estimated channel is an ideal solution; however, the implementation is very difficult due to the sophisticated system when it is applied to fast fading channels. OFDM modulation supports wideband communications with high data rate and handles frequency selective fading, but it is not able to overcome the problems of fast fading conditions. Therefore to handle this condition, this requires a particular multicarrier technique.

The Non-coherent communication system on the canal could become one of the alternative solutions, because it did not require carrier recovery at the receiver. This technique was simpler than the coherent channel communication systems because this CCK modulation technique applied reliable non-

coherent communication systems to overcome the fast fading conditions. This modulation implemented DQPSK, a differential modulator on the sender and a Modified-FWT with channel match filter and correlator functioning as a rake receiver at the receiver so that this system was able to overcome the effect of multipath channels.

This study showed that the integration of CCK and OFDM to overcome the multipath channels and the high user mobility had improved the performance shown by the curves of BER for E_b/N_0 .

Keywords:

CCK, OFDM, DQPSK, Binary Complementary Code, Polyphase Complementary Code, BER vs E_b/N_0 , Fast Fading, Multipath Fading